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The political role of the State in Cambridge theories of growth and distribution

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In this paper we extend Kaldor's Neo-Pasinetti theorem to the scope of budgetary interventions based on political orientations. First, we take into account a system of taxes and expenditures. Second, we introduce different reaction functions for public spending showing the political role of the State in Cambridge theory of distribution. It turns out that the validity of Kaldorian results depends on the political orientation adopted by government, which diminishes the range of application of the Neo-Pasinetti theorem.

Key-words: Kaldor, Budgetary policy, Distribution.

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INTRODUCTION

Kaldor's Neo-Pasinetti theorem has often been shelved, among Post-Keynesian contributions to the theory of income distribution. Today, there is no doubt that controversies between Pasinetti (1962, 1964, and 1966) and neoclassical economists (Samuelson and Modigliani, 1966; Meade, 1963; Meade and Hahn, 1965) monopolized discussions. Developments of the original Cambridge theorem by the introduction of a system of taxes and expenditures, due to Steedman (1972), confirmed this trend which became heavily attacked by Fleck and Domenghino (1987, 1990) and the massive rejoinders emanating from Post-Keynesian authors.[1]

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[1] Cf., for instance, Pasinetti (1989), Dalziel (1989, 1991-1992), Denicolò and Matteuzzi (1990) and Araujo (1992-1993). Finally, Teixeira (1991) deals with the Cambridge theorem, including both direct and indirect taxation and opening the economy to international trade and flows of capital.

In the recent literature, Kaldor's (1966) model seems to give rise to a new interest among some economists. This is the case of Lavoie (1998), Commendatore (1999), Park (2002, 2004) and Charles (2004). As far as we are concerned, we explicitly developed this kind of approach.

The purpose of this paper is to extend the Neo-Pasinetti theorem by introducing the political orientation included in government expenditures. First, we recall the main features of Kaldor's original growth and distribution model when budgetary policy is not taken into account. Second, we drop out this simplifying assumption by incorporating government expenditures, financed by a simple tax system. Third, we encompass different reaction functions concerning public expenditures, showing, in each case, the political role of the State in a Cambridge growth and distribution model. Finally, we draw some conclusions about the range of validity of this modified Kaldorian model.

REVIEW OF KALDOR'S (1966) NEO-PASINETTI MODEL

The starting point of Kaldor's analysis consists in separating two categories of agents: modern corporations and households. Corporations finance investment expenditures using retained profits and selling new securities — shares — on financial markets. As for households, they perceive wages and dividends as a counterpart of possessed securities. Moreover, the only way to save for households is to purchase these issued securities. As a consequence, there exist two markets in Kaldor's theoretical view: a product market and a securities market. The original version of Kaldor's Neo-Pasinetti model may be summed up via the following set of equations:[2]

$$I = s_f P + s_w W - cG \qquad (1)$$

$$xI = s_w W - cG \qquad (2)$$

$$I = s_f P + xI \qquad (3)$$

with I investment, P profits, W total wage bill, G capital gains (or losses if $G < 0$), s_f corporate retention rate, s_w propensity to save out of wages, c propensity to consume out of capital gains, x the fraction of investment financed via issuing shares.

Equation (1) represents equilibrium in the good market through the well-known condition "investment equals saving". Global saving (S) is the sum of households' net saving on income and firms' retained profits. Households' net saving corresponds to saving out of wages less the consumption out of capital gains, arising from sales of ancient securities. As for equation (2), when supply of issued securities exactly matches households' net saving equilibrium on securities

[2] Hereafter, we assume that savings out of dividends are zero, following strictly Kaldor's original analysis.

market is assured. Equation (3) is simply obtained by introducing (2) into (1), it indicates the different way to finance accumulation: internal resources ($s_f P$) and issuing shares (xI) as a fraction of global investment.

Moreover, Kaldor considers that capital gains are a function of the valuation ratio $v_r = pN/K$ (i.e. the market value of shares divided by capital stock) with p the price per share, N the number of shares and K the physical capital stock. Differentiating the valuation ratio with respect to time and assuming dynamic equilibrium ($\dot{v}_r = 0$), we have:[3]

$$\begin{aligned} &\dot{K}v_r + \dot{p}N + \dot{N}p \\ &G = \left(v_r - x\right)I \end{aligned} \qquad (4)$$

since $\dot{p}N=G$ corresponds to capital gains (variations in price) and $\dot{N}p=xI$ is the supply of new securities (variations in quantity). Then, taking into account the fact that the distribution of income, the rate of profit, the growth rate and the constant capital-output ratio write, respectively, $W = Y - P$, $r = P/K$, $g = I/K$ and $v = K/Y$, and integrating expression (4) into equations (1) and (2), we find:

$$s_w / v = c\left(v_r - x\right)g + \left(s_w - s_f\right)r + g \qquad (5)$$

$$s_w / v = c\left(v_r - x\right)g + s_w r + xg \qquad (6)$$

After rearranging the terms and solving for r and v_r we get the equilibrium values:

$$r = \frac{(1-x)g}{s_f} \qquad (7)$$

$$v_r = \frac{1}{c}\left[\frac{s_w}{gv} - \frac{s_w}{s_f}(1-x) - x(1-c)\right] \qquad (8)$$

Equation (7) is relatively surprising since it is quite similar to the result obtained by Pasinetti (1962), known as Cambridge theorem, putting forward the key role of growth rate in the determination of the rate of profit and the evacuation of workers from the definition of r. The only difference is that s_f does not represent the capitalists' propensity to save out of profits but firms' propensity to save or retention ratio. Finally, using the capital-output ratio, (7) also gives the distribution of income between profits and wages: $P/Y = (1 - x)gv/s_f$. Equation (8) shows, among other, the negative impact of accumulation on the valuation ratio:

$$dv_r / dg = -s_w / cvg^2 < 0$$

This result is easily explainable since global investment is externally financed via the Stock Market; indeed, the issue of shares depreciates the market value of

[3] A dot over the symbol denotes the derivative with respect to time.

securities and, in turn, the valuation ratio. However, this version of Neo-Pasinetti model does not deal with public expenditures, taxes and political orientations of government spending. This is the purpose of sections 3 and 4.

GOVERNMENT EXPENDITURES AND TAXES

The first stage of this analysis is to provide a taxation function for each class of agents, firms and households, and a long-run condition for balance budget. Consequently, we consider the following equations for taxes and government expenditures:

$$G_E = T \tag{9}$$

$$T = t_w W + t_p P \tag{10}$$

where G_E is the value of public expenditures, T the total value of taxes, t_w the tax rate on wages and t_p the tax rate on profits. The parameters t_w and t_p are all included in the interval zero-unity. For the sake of simplicity, we make three assumptions: (i) a balance budget, (ii) government spending is only financed through taxes and (iii) there are no taxes on capital gains. Here, we let to further developments difficulties due to unbalance budget and the introduction of Treasury Bonds in the spirit of Panico (1997). Indeed, the main purpose, here, is to assess the impact of political orientations of government on Neo-Pasinetti results rather than to study the effect of an unbalanced budget on the distribution of income in the logic initiated by Fleck and Domenghino (1987, 1990) and Pasinetti (1989). Then, introducing taxes and public expenditures into Kaldor's (1966) model we find:

$$I + G_E = s_f\left(1 - t_p\right)P + s_w(1 - t_w)W - cG \tag{1'}$$

$$xI = S_w(1 - t_w)W - cG \tag{2'}$$

$$I + G_E + s_f(1 - t_p)P + xI \tag{3'}$$

Through the usual passages, we obtain the Neo-Pasinetti theorem corrected by the effects of government spending and taxes:

$$r = \frac{(1-x)g}{s_f} \tag{7'}$$

$$v_r = \frac{1}{c}\left[\frac{s_w}{gv} - \frac{s_w}{s_f}(1-x) - x(1-c)\right] \tag{8'}$$

Where $g_E = G_E/K$. Equation (7') reveals again that the macroeconomic rate of profit is independent of the rate of savings of households and corresponding parameters. Consequently, only variables related to firm's behaviours and

government enter the definition of income distribution. The effect of g on the valuation ratio is still negative provided that the following inequality holds:

$$g_E v < (1-t_w)(1-t_p)s_f$$

Thus, Kaldor's conclusions seem to hold when we encompass government spending and a balance budget. Nevertheless, macroeconomic policy is completely exogenous in the previous model. It does not contain any information on the political orientation of government expenditures. The fundamental issue is to know which agents — corporations or households — the government acts for. We need to introduce political choices through the use of simple reaction functions for public spending in order to assess the general validity of Kaldor's Neo-Pasinetti theorem.

INTRODUCING POLITICAL ORIENTATIONS IN PUBLIC EXPENDITURES

In this section, we shall identify two kinds of political orientation. In the first one, government acts favouring households; in the second one, it acts favouring firms. So, we assume the following two reaction functions for budgetary policy:

$$G_E = \alpha(\bar{C} - C) \qquad (11)$$

$$G_E = \alpha(\bar{P} - P) \qquad (12)$$

where α is a positive parameter accounting for government adjustment speed. Equation (11) simply states that government acts in order to sustain households' consumption. If actual consumption is smaller than target consumption, defined $\bar{C}$ as government increases public expenditures. Otherwise, it diminishes public spending. The consumption function writes:

$$C = c_w(1-t_w)W + (1-s_f)(1-t_p)P + cG \qquad (13)$$

We recall that, following Kaldor (1966, p. 318), households' propensity to consume out of received dividends equals unity. Equation (12), in turn, postulates an adjustment process for out-of-targeting value of profits. In this case, government gives a major attention to firms' situation with respect to households.

Following the logic of sections 2 and 3, and replacing G_E by its value from (11) and C by (13) into the system (1')-(3'), we find the corresponding expressions for the rate of profit and the valuation ratio, according to the political orientations of government:

$$r = \frac{\left[1-(1-\alpha)x\right]g + \alpha\bar{c} - \alpha\left(1-t_w\right)/v}{(1-t_p)\left[\alpha(1-s_f)+s_f\right] - \alpha\left(1-t_w\right)} \qquad (14)$$

$$v_r = \frac{1}{cg}\left\{\frac{s_w(1-t_w)}{v} - s_w\left[\frac{[1-(1-\alpha)x]g + \alpha\bar{c} - \alpha(1-t_w)/v}{1-t_p\left[\alpha(1-s_f)+s_f\right]-\alpha\left(1-t_w\right)}\right] - x(1-c)g\right\} \qquad (15)$$

with $\bar{c} = \bar{C}/K$ Equation (14) states that the rate of profit is determined by the firms' retention ratio and the corresponding tax rate on profits, the rate of growth, the target consumption, the tax rate on wages, the rate of external financing and the capital-output ratio. Some simple computations show the impact of target consumption and retained profits on the profit rate. For instance, it is to note that Post-Keynesian results are partially preserved concerning the negative effect of s_f on r. However, expression (14) also shows that Kaldor's Neo-Pasinetti theorem does not hold if government spending follows a specific budgetary policy which aims at favouring households, since it reintroduces behaviours relative to technology (v). In consequence, the impact of exogenous variables is no more valid outside the scope of a one-good-world, as it has been shown by Hagemann (1991) when dealing with Cambridge models of growth and distribution. Another way to interpret equation (14) is to say that the previous result seems to strengthen Kaldor's intuitive idea of the irrelevance of workers' influence in the equilibrium rate of profit. Indeed, we see that the propensity to save of workers does not appear in (14). The variable appearing in the definition of r are the tax rate on wages (t_w), the target consumption ($\bar{c}$) and the adjustment speed (α) which are not controlled by workers but by government. Finally, expression (15) for the valuation ratio is also generalized through the variables expressing government endogenous policy. We see among others, the negative impact $\bar{c}$ of on v_r; the explanation is the following: an increase on target consumption, all else being constant, implies an increase on the level of firms' profits and global investment, which is partially financed through new issues of shares on the Stock market.

Now, a similar procedure can be applied to the case of a policy favouring corporations. Introducing (12) into the system (1')-(3') gives:

$$r = \frac{\alpha\bar{r} + (1-x)g}{s_f(1-t_p)+\alpha} \qquad (16)$$

$$v_r = \frac{1}{cg}\left\{\frac{s_w(1-t_w)}{v} - s_w\left[\frac{\alpha\bar{r} + (1-x)g}{s_f(1-t_w)+\alpha}\right] - x(1-c)g\right\} \qquad (17)$$

Here, $\bar{r} = \bar{P}/K$ is the target rate of profit. At first glance, equation (16) indicates that the Neo-Pasinetti theorem holds when government policy favours corporate firms on the basis of an endogenous public expenditure formalized *via* expression (12). We see that the saving propensity of workers and technology play no role in the determination of the rate of profit. Moreover, remarks about the irrelevance of workers' behaviours on r, as seen through (14), still hold.

Finally, introducing different reaction functions for public spending shows that the political role of the State in Kaldor's (1966) Neo-Pasinetti model is

fundamental. Indeed, it appears that Kaldor's results deeply depend on the political orientation adopted by government.

CONCLUSION

In this framework we attempted to extend Kaldor's (1966) original model to the scope of political choices of government. First, we briefly developed government activities by integrating public expenditure and taxes. Then, we introduced the concept of "political orientation", contained in any public spending policy, through two different approaches. The first approach makes government intervention to depend on the level of consumption with respect to a target consumption value while the second approach adopts an opposite vision, putting forward the economic importance of corporations' profits. Kaldor's Neo-Pasinetti theorem is shown to hold for only one of these approaches. We made the following proposition: the validity of Kaldor's results depends on whether government acts for firms or households. Consequently, the range of application of Kaldor's (1966) model seems to be confined to a special case when dealing with political orientations of government.

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